

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of performing link quality estimation of a TDMA-based wireless communication link between a mobile station (10) and a target base station (16a-e), wherein the mobile station (10) receives a signal on a channel frequency of the target base station (16a-e), characterized by comprising the following steps, executed in the mobile station:

measuring a link quality of the received signal, and simultaneously identifying the target base station (16a-e) in parallel with the measurement based on the same received signal, and

qualifying the measurement as valid if the mobile station (10) has succeeded to identify the target base station (16a-e) based on the received and measured signal, or

discarding the measurement if the mobile station (10) has failed to identify the target base station (16a-e) based on the received and measured signal.

2. (Currently Amended) A method according to claim 1, wherein the mobile station (10) is connected to a serving base station (14) and the target base station (16a-e) is a neighbouring base station, ~~characterised by the further~~ comprising the step of reporting the qualified measurement by the mobile station (10) to the serving base station (14).

3. (Currently Amended) A method according to claim 2, ~~characterised in that~~
wherein the mobile station (10) is directed by the serving base station (14) in a
measurement order to select a measuring and identifying scheme for performing the steps
of measuring and identifying, wherein the scheme is pre-programmed in the mobile
station (10).

4. (Currently Amended) A method according to ~~any of claims 1-3~~claim 1,
~~characterised in that~~ wherein the received signal is measured with respect to at least one
of: received signal strength (RSS), carrier-to-interference power ratio (C/I), carrier
power, and bit error rate (BER).

5. (Currently Amended) A method according to ~~any of claims 1-4~~claim 1,
~~characterised in that~~ wherein the received signal includes an identity of the target base
station (16a-e) which is detected by the mobile station (10).

6. (Currently Amended) A method according to claim 5, ~~characterised in that~~
wherein the received signal includes a synchronisation channel burst from the target base
station (16a-e) including the identity.

7. (Currently Amended) A method according to ~~any of claims 1—4~~claim 1, wherein the received signal includes a burst from the target base station ~~(16a-e)~~ including a training sequence, ~~characterised in that~~ wherein the identifying step includes the substeps of:

estimating the training sequence by the mobile station ~~(10)~~, wherein the training sequence is related to an identity of the target base station ~~(16a-e)~~ in a way that is known by the mobile station ~~(10)~~, and

deriving the target base station identity from the estimated training sequence based on the known relation.

8. (Currently Amended) A method according to claim 7, ~~characterised in that~~ wherein a code of the training sequence is identical to the identity of the target base station ~~(16a-e)~~.

9. (Currently Amended) A method according to ~~any of claims 1—8~~claim 1, ~~characterised in that~~ wherein the identifying step includes attempting to detect the received signal using at least two different modulation forms.

10. (Currently Amended) A method according to ~~any of claims 1-9~~claim 1,
~~characterised in that~~ wherein the received signal includes a dummy burst including an
identity of the target base station (~~16a-e~~).

11. (Currently Amended) A method according to claim 7 ~~or 8~~, ~~characterised in~~
~~that~~ wherein the burst from the target base station (~~16a-e~~) is a dummy burst including the
training sequence being related to the identity of the target base station (~~16a-e~~).

12. (Currently Amended) A method according to ~~any of claims 1-4 and 7-~~
~~11~~claim 1, ~~characterised in that~~ wherein channel estimation is conducted on the received
signal with respect to the target base station (~~16a-e~~) for performing at least one of the
measuring and identifying steps.

13. (Currently Amended) A method according to claim 12, wherein one or more
channel estimates are derived from the received signal, ~~characterised in that~~ wherein
identifying step includes the substeps of:

determining the channel estimates for a set of pre-determined training sequences,
calculating a selection metric, and
selecting the training sequence that yields the greatest selection metric.

14. (Currently Amended) A method according to ~~any of claims 1—13~~claim 1, wherein the target base station (~~16a-e~~) is unsynchronised with the mobile station (~~10~~), ~~characterised in that~~ wherein the mobile station (~~10~~) receives a burst of a synchronisation channel for obtaining timing information, wherein the identifying step is based on the obtained timing information.

15. (Currently Amended) A method according to ~~any of claims 1—14~~claim 1, ~~characterised in that~~ wherein the received signal includes a complete burst period.

16. (Currently Amended) A method according to claim 12, wherein the received signal includes contributions from a plurality of unsynchronised target base stations transmitting on the same frequency channel, ~~characterised in that~~ wherein the steps of measuring and identifying are performed with respect to one target base station at a time sequentially for at least two of the target base stations.

17. (Currently Amended) A method according to claim 12, wherein the received signal includes contributions from a plurality of synchronised target base stations transmitting on the same frequency channel, ~~characterised in that~~ wherein the steps of measuring and identifying are performed with respect to the target base stations for at least two of the synchronised target base stations jointly in one operation.

18. (Currently Amended) A method according to ~~any of claims 1-17~~claim 1,
~~characterised in that~~ wherein the qualified measurement is used for at least one of:
performing base station selection for serving the mobile station (10) in idle or busy mode,
estimating cell relations and determining the position of the mobile station (10).

19. (Currently Amended) A mobile station (10) including means for receiving a
signal on a channel frequency of a target base station (16a-e) for performing link quality
estimation of a TDMA-based wireless communication link with the target base station
(16a-e), ~~characterised in that~~ wherein the mobile station (10) further includes:

means for measuring a link quality of the received signal and for simultaneously
identifying the target base station (16a-e) in parallel with the measurement based on the
same received signal,

means for qualifying the measurement as valid if the mobile station (10) has
succeeded to identify the target base station (16a-e) based on the received and measured
signal, and

means for discarding the measurement if the mobile station (10) has failed to
identify the target base station (16a-e) based on the received and measured signal.

20. (Currently Amended) A mobile station (10) according to claim 19, wherein the mobile station (10) is connected to a serving base station (14) and the target base station (16a-e) is a neighbouring base station, ~~characterised in that~~ wherein the mobile station (10) further includes means for reporting the qualified measurement by the mobile station (10) to the serving base station (14).

21. (Currently Amended) A mobile station (10) according to claim 20, ~~characterised in that~~ wherein the mobile station (10) further includes at least one pre-programmed measuring and identifying scheme, wherein the mobile station (10) is directed by the serving base station (14) in a measurement order to select a measuring and identifying scheme.

22. (Currently Amended) A mobile station (10) according to ~~any of claims 19-21~~ claim 19, ~~characterised in that~~ wherein the measuring means measures the received signal with respect to at least one of: received signal strength (RSS), carrier-to-interference power ratio (C/I), carrier power and bit error rate (BER).

23. (Currently Amended) A mobile station (10) according to ~~any of claims 19-22~~ claim 19, ~~characterised in that~~ wherein the identifying means detects an identity of the target base station (16a-e) included in the received signal.

24. (Currently Amended) A mobile station (10) according to ~~any of claims 19-22~~ claim 19, ~~characterised in that~~ wherein the identifying means estimates a training sequence included in the received signal, wherein the training sequence is related to an identity of the target base station (16a-e) in a way that is known by the mobile station (10), and that the identifying means further derives the identity from the estimated training sequence based on the known relation.

25. (Currently Amended) A mobile station (10) according to ~~any of claims 19-24~~ claim 19, ~~characterised in that~~ wherein the identifying means attempts to detect the received signal using at least two different modulation forms.

26. (Currently Amended) A mobile station (10) according to ~~any of claims 19-22, 24 and 25~~ claim 19, ~~characterised in that~~ wherein the mobile station (10) further includes means for conducting channel estimation on the received signal with respect to the target base station (16a-e), which is used for measuring and identifying.

27. (Currently Amended) A mobile station (10) according to claim 26, wherein one or more channel estimates are derived from the received signal, ~~characterised in that~~ wherein the mobile station (10) further includes:

means for determining the channel estimates for a set of pre-determined training sequences,

means for calculating a selection metric, and

means for selecting the training sequence that yields the greatest selection metric.

28. (Currently Amended) A mobile station (10) according to ~~any of claims 19-27~~ claim 19, wherein the target base station (16a-e) is unsynchronised with the mobile station (10), ~~characterised in that~~ wherein the mobile station (10) further includes means for receiving a burst of a synchronisation channel for obtaining timing information, wherein the identifying means uses the obtained timing information.

29. (Currently Amended) A mobile station (10) according to claim 26, wherein the received signal includes contributions from a plurality of unsynchronised target base stations transmitting on the same frequency channel, ~~characterised in that~~ wherein the measuring and identifying means measures and identifies with respect to one target base station at a time sequentially for at least two of the target base stations.

30. (Currently Amended) A mobile station (10) according to claim 26, wherein the received signal includes contributions from a plurality of synchronised target base stations transmitting on the same frequency channel, ~~characterised in that~~ wherein the

measuring and identifying means measures and identifies jointly with respect to the target base stations for at least two of the synchronised target base stations in one operation.

31. (Currently Amended) A mobile station (10) according to ~~any of claims 19-30~~ claim 19, ~~characterised in that~~ wherein the mobile station (10) further includes means for performing base station selection based on the measurement results.

32. (Currently Amended) A computer program product directly loadable into the internal memory of a computer in the mobile station (10), including software code means for performing the method according to ~~any of claims 1-18~~ claim 1.

33. (Currently Amended) A computer program product stored on a computer usable medium, including readable program for causing a computer in the mobile station (10) to perform the method according to ~~any of claims 1-18~~ claim 1.